Amendments to the Claims

This listing of claims will replace all prior versions, and the listings of claims in the application.

1. (*currently amended*) A maskless lithography system, comprising:

   a spatial light modulator that includes a plurality of spatial light modulator cells;

   a reference reticle having at least one reference feature, the reference reticle located in a plane with the spatial light modulator proximate to one of the plurality of spatial light modulator cells;

   a pattern rasterizer that applies a signal to the spatial light modulator to form a die pattern that includes the at least one reference feature;

   an illumination source that emits illumination energy to illuminate the spatial light modulator and the reference reticle; ~~and~~

   projection optics, having a pupil, that form a die image with illumination energy entering the pupil from the spatial light modulator and a reference image with illumination energy entering the pupil from the reference reticle; and

   a reference reticle postioner that positions the reference reticle to direct incident illumination energy from the illumination source away from the pupil of the projection optics.

2. (*original*) The system of claim 1, further comprising:

   a image scanner that detects the die image and the reference image formed by the projection optics.

3. (*original*) The system of claim 2, wherein the die image and the reference image are resist images.

4. (*original*) The system of claim 2, wherein the die image and the reference image are aerial images.

5. (*original*) The system of claim 2, further comprising:

a comparator coupled to the image scanner that compares the die image to the reference image.

6. (*original*) The system of claim 5, further comprising:

an adjustment control coupled to the comparator that is adjusted based on an output of the comparator.

7. (*original*) The system of claim 6, wherein the adjustment control is adjusted at least once during the processing of each lot of substrates.

8. (*original*) The system of claim 1, further comprising:

a shutter optically located between the illumination source and the reference reticle that controls the amount of illumination energy incident upon the reference reticle from the illumination source.

9. (*canceled*)

10. (*currently amended*) The system of claim [[9]] 1, further comprising:

an illumination monitor that measures the intensity of the illumination energy directed away from the pupil of the projection optics by the reference reticle.

11. (*original*) The system of claim 10, further comprising:

an illumination controller coupled to the illumination monitor that adjusts the amount of illumination energy emitted by the illumination source based on an output of the illumination monitor.

12. (*currently amended*) The system of claim [[9]] 1, further comprising:

an illumination monitor that measures the intensity of the illumination energy transmitted through the reference reticle.

13. (*original*) The system of claim 12, further comprising:

an illumination controller coupled to the illumination monitor that adjusts the amount of illumination energy emitted by the illumination source based on an output of the illumination monitor.

14. (*currently amended*) A method for adjusting a maskless lithography system that includes an illumination source, a spatial light modulator, a reference reticle having at least one reference feature, and projection optics having a pupil, comprising:

(a) illuminating the reference reticle with illumination energy emitted by the illumination source;

(b) forming a reference image of the at least one reference feature of the reference reticle with illumination energy from the reference reticle that enters the pupil of the projection optics;

(c) applying a signal to the spatial light modulator to form a die pattern that includes the at least one reference feature;

(d) illuminating the spatial light modulator with illumination energy emitted by the illumination source while the signal is applied to the spatial light modulator;

(e) forming a die image of at least one reference feature with illumination energy from the spatial light modulator that enters the pupil of the projection optics;

(f) comparing the die image of the at least one reference feature to the reference image of the at least one reference feature; ~~and~~

(g) adjusting the maskless lithography system based on the comparison in step (f); and

(h) positioning the reference reticle to reflect incident illumination energy from the illumination source away from the pupil of the projection optics.

15. (*canceled*)

16. (*canceled*)

17. (*currently amended*) The method of claim [[16]] 14, further comprising:

(i) measuring the intensity of the illumination energy reflected from the reference reticle.

18. (*original*) The method of claim 17, further comprising:

(j) adjusting the intensity of the illumination energy emitted by the illumination source based on the intensity of the illumination energy measured in step (i).

19. (*original*) The method of claim 17, further comprising:

(j) recording the intensity of the illumination energy measured in step (i).

20. (*currently amended*) The method of claim [[16]] 14, further comprising:

(i) measuring the intensity of the illumination energy transmitted through the reference reticle.

21. (*original*) The method of claim 20, further comprising:

    (j) adjusting the intensity of the illumination energy emitted by the illumination source based on the intensity of the illumination energy measured in step (i).

22. (*original*) The method of claim 21, further comprising:

    (j) recording the intensity of the illumination energy measured in step (i).

23. (*original*) The method of claim 14, wherein step (f) comprises:

    comparing resist images.

24. (*original*) The method of claim 14, wherein step (f) comprises:

    comparing aerial images.

25. (*original*) The method of claim 14, wherein the reference reticle and the spatial light modulator are mounted on a movable surface, and the method further comprises:

    (h) tilting the movable surface;

    (i) observing the reference image of the at least one reference feature to determine the effects of the tilting in step (h), the reference image being an aerial image; and

    (j) positioning the movable surface based on the observations of step (i) to achieve a desired telecentricity.